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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Bringmann et al. Examiner: TBA

Serial No.: 10/005,646 Group Art Unit: 1619

Filed: December 7, 2001

Title: NOVEL FIBROBLAST GROWTH FACTORS

AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Notice to File Missing Parts of NonProvisional Application dated January 7, 2002, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please replace the paragraph beginning at page 4, lines 1-11 with the following new paragraph:

For example, protein sequences of FGF-20 and -23 were aligned, and amino acid motifs were generated based on the conserved areas of homology a shown in Figs. 1 and 2. The present invention relates to any nucleic acid or polypeptide sequences thereof, e.g., polypeptides which comprises three or more conserved or homologous residues, such as, e.g., LYGS (SEQ ID NO: 9), HFLP (SEQ ID NO: 10), VQGTR (SEQ ID NO: 11), RIEENGHNTY (SEQ ID NO: 12), QFEENWYNTY (SEQ ID NO: 13), AGTPSA (SEQ ID

NO: 14), AAERSA (SEQ ID NO: 15), etc. Other specific and/or conserved amino acid sequences can be found routinely, e.g., by searching a gene/protein database using the BLAST set of computer programs. An FGF -specific amino acid sequence or motif can be useful to produce peptides as antigens to generate an immune response specific for it. Antibodies obtained by such immunization can be used as a specific probe for a mammalian FGF protein for diagnostic or research purposes.

Please replace the paragraph beginning at page 8, line 20 to page 9, line 6 with the following new paragraph:

A polypeptide according to the present invention can be recovered from natural sources, transformed host cells (culture medium or cells) according to the usual methods, including, detergent extraction (e.g., non-ionic detergent, Triton X-100, CHAPS, octylglucoside, Igepal CA-630), ammonium sulfate or ethanol precipitation, acid extraction, anion or cation exchange chromatography, phosphocellulose chromatography, hydrophobic interaction chromatography, hydroxyapatite chromatography, lectin chromatography, gel electrophoresis. Protein refolding steps can be used, as necessary, in completing the configuration of the mature protein. Finally, high performance liquid chromatography (HPLC) can be employed for purification steps. An FGF polypeptide can also be isolated as described for other FGF proteins as the skilled worker would know, e.g., as described in the following which describe the isolation of various FGFs, U.S. Pat. Nos. 5,604,293, 5,395,756, 5,155,214, 4,902,782, and Santos-Ocampo et al., J. Biol. Chem., 271:1726-1731, 1996 (purifying FGF from a bacterial host, such as E.coli). Another approach is express FGF recombinantly with an affinity tag (Flag epitope, HA epitope, myc epitope, 6xHis (SEQ ID NO: 16), maltose binding protein, chitinase, etc) and then purify by anti-tag antibody-conjugated affinity chromatography.

Please replace the paragraph beginning at page 32, lines 28-29 with the following new paragraph:

Fig. 3 shows the aligned amino acid sequence of FGF-20 (SEQ ID NO: 2) protein with known FGF-family members (SEQ ID NOS 5-7, respectively, in order of appearance). xfgf-20 (SEQ ID NO: 8) is from Xenopus laevis.

REMARKS

The amendments to the specification merely clarify the SEQ ID numbers which correspond to the indicated sequences. No new matter is added.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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FILED: April 4, 2002
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

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